



An Energy-Efficiency Workshop and Exposition
Orlando, Florida

Biomass & Alternative Methane Fuels Super ESPC

presented to

Energy 2003

Orlando, FL August 20, 2003

Christopher Abbuehl – DOE Philadelphia
Regional Office

215-656-6995 or christopher.abbuehl@ee.doe.gov



BAMF Tech Specific Super ESPC

Basic Features

- ❖ Federal Facility - Worldwide
- ❖ One of selected ESCO's
- ❖ Involve a BAMF Resource
- ❖ Contract & technical support by NETL



BAMF Contractors

ESCO's Awarded IDIQ Contracts

- Constellation Energy Source
- DTE Biomass Energy, Inc.
- Energy Systems Group
- Exelon Services Federal Group
- Trigen Development Corporation



Biomass Resources

Woodwaste & Waste wood

- Forest Clearing
- Lumber Companies
- Furniture Industry
- Dedicated Crops





Biomass Resources

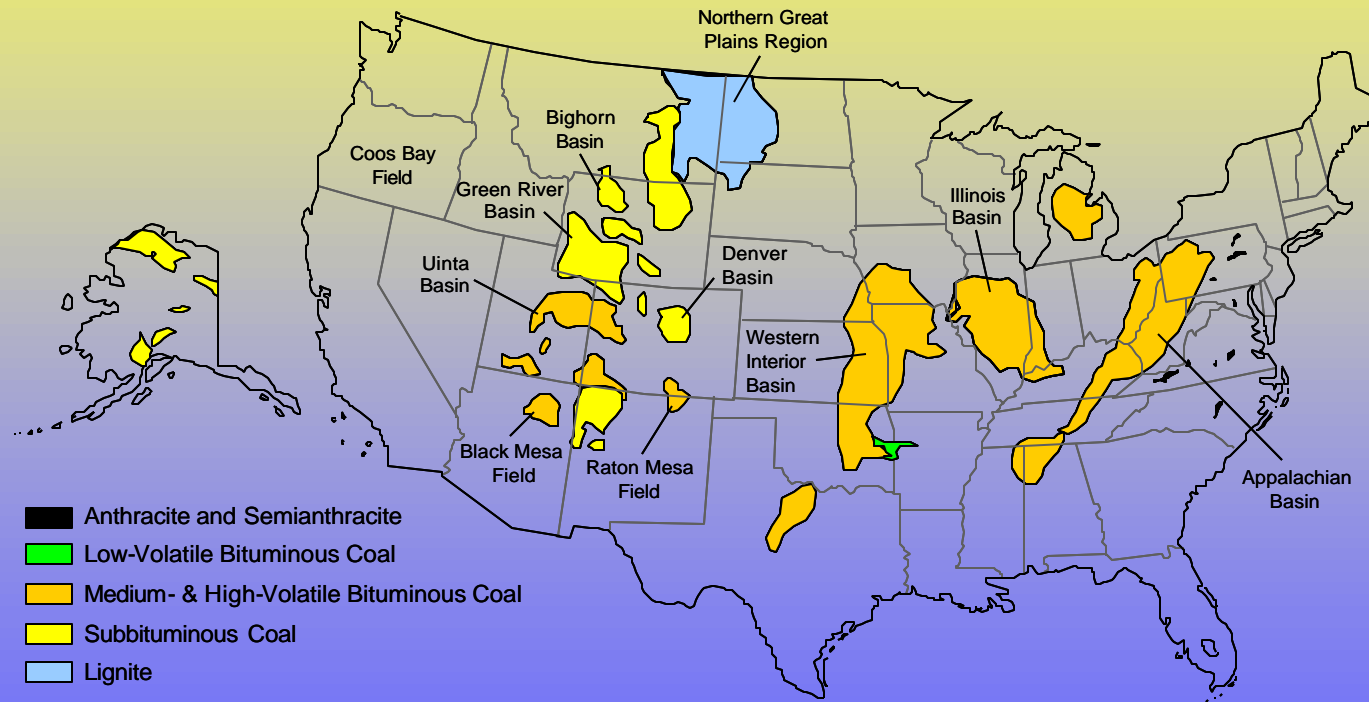
Municipal & Agricultural Wastes

- Landfills (MSW and LFG)
- Wastewater Treatment Plants
- Dairy, Hog & Poultry



Biomass Resources

Coal Mine and Coal-bed Methane





Biomass Resources

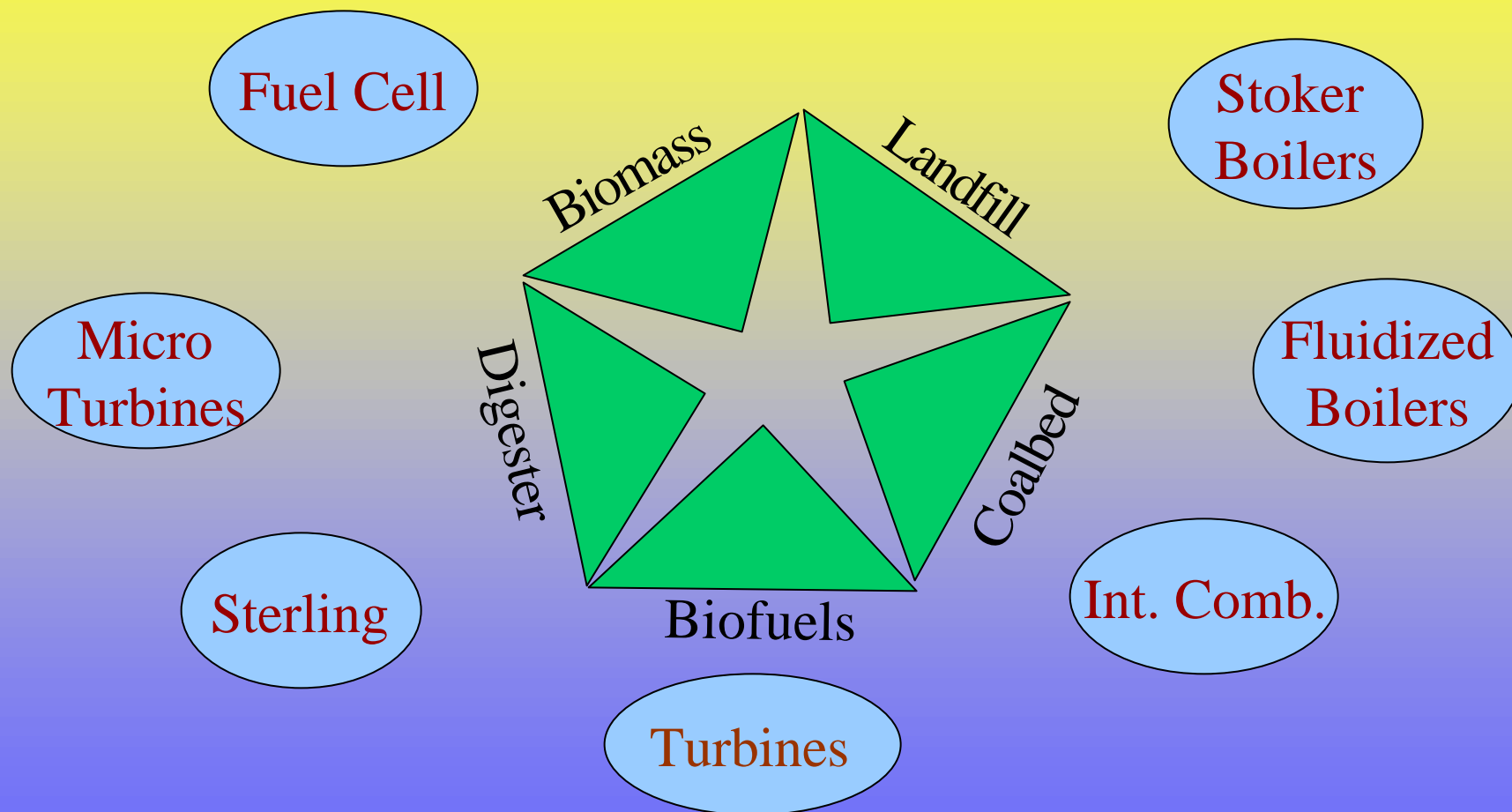
Biofuel Production

- Ethanol
- Methanols
- Bio-diesel



- Corn
- Soybeans
- Recycled Oils

End Use Applications





Biomass System Reliability

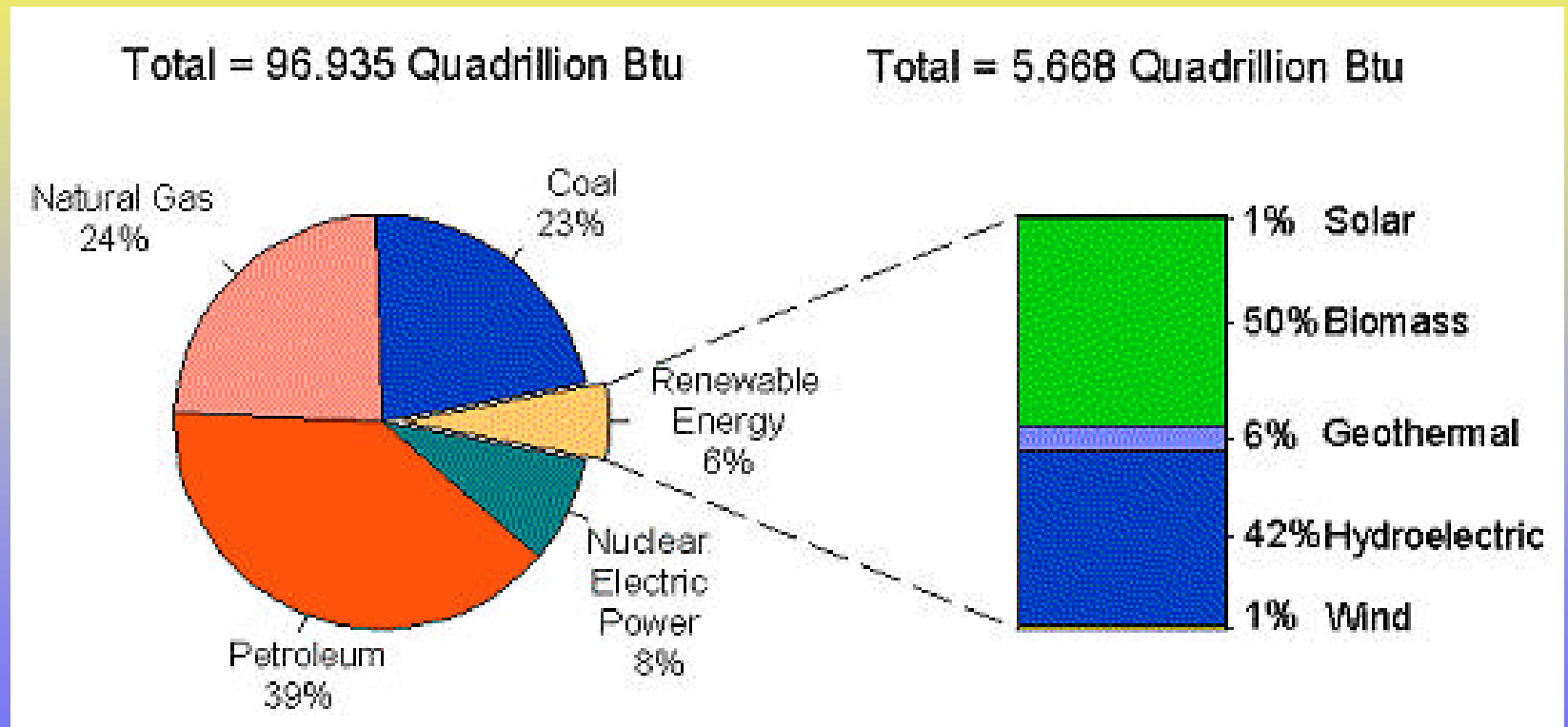
- 1000 Plants in Operation
- Energy Stored & Dispatched
- High Capacity Factors





National Energy Production

Energy Information Agency 2001 Report





Bioenergy Industries

Direct Combustion & Co-firing

- 7,800 MW Installed
- 600+ locations
- Mostly CHP
- 800+ federal candidates





Bioenergy Industries

Landfill Gas Industry - Rules of Thumb

- 350 commercial projects
- 1000 MW in production
- 1 million tons = 300 cfm
= .8 MWe
- 700 federal candidates





Bioenergy Industries

Coal Mine / Coalbed Methane Gas

- ❖ Coalbed – 17 projects selling 43 bcf/yr
- ❖ Coal Mines captured 14 bcf in 1990
36 bcf in 2000
- ❖ Uses – heat, power, and sale to gas grid





Bioenergy Industries

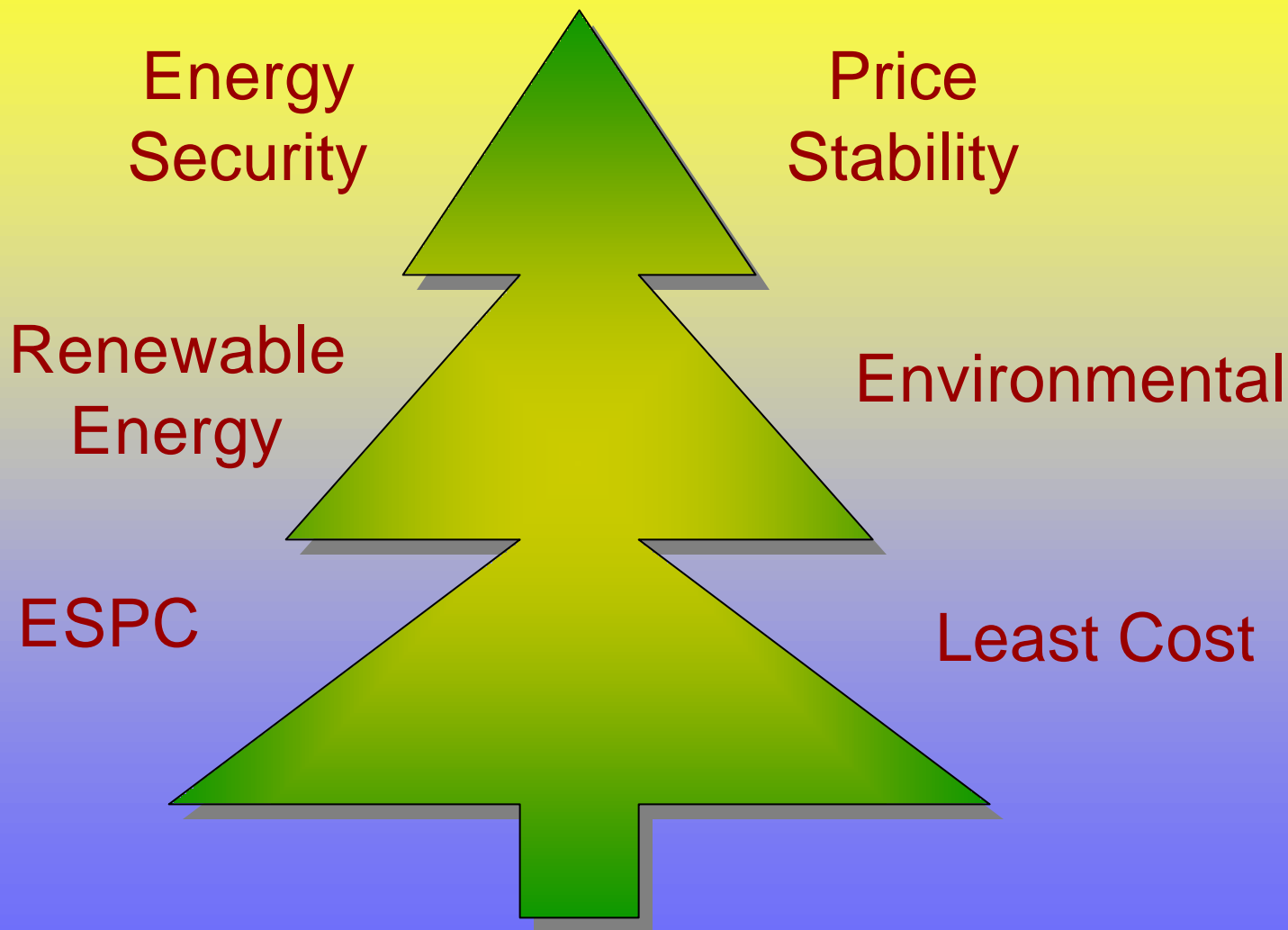
Wastewater Treatment Digester Gas

- Thousands in operation
- 10 mile radius
- 3 million gal. per day
- 500 facilities capable of $> 250\text{kw}$





BAMF Project Benefits



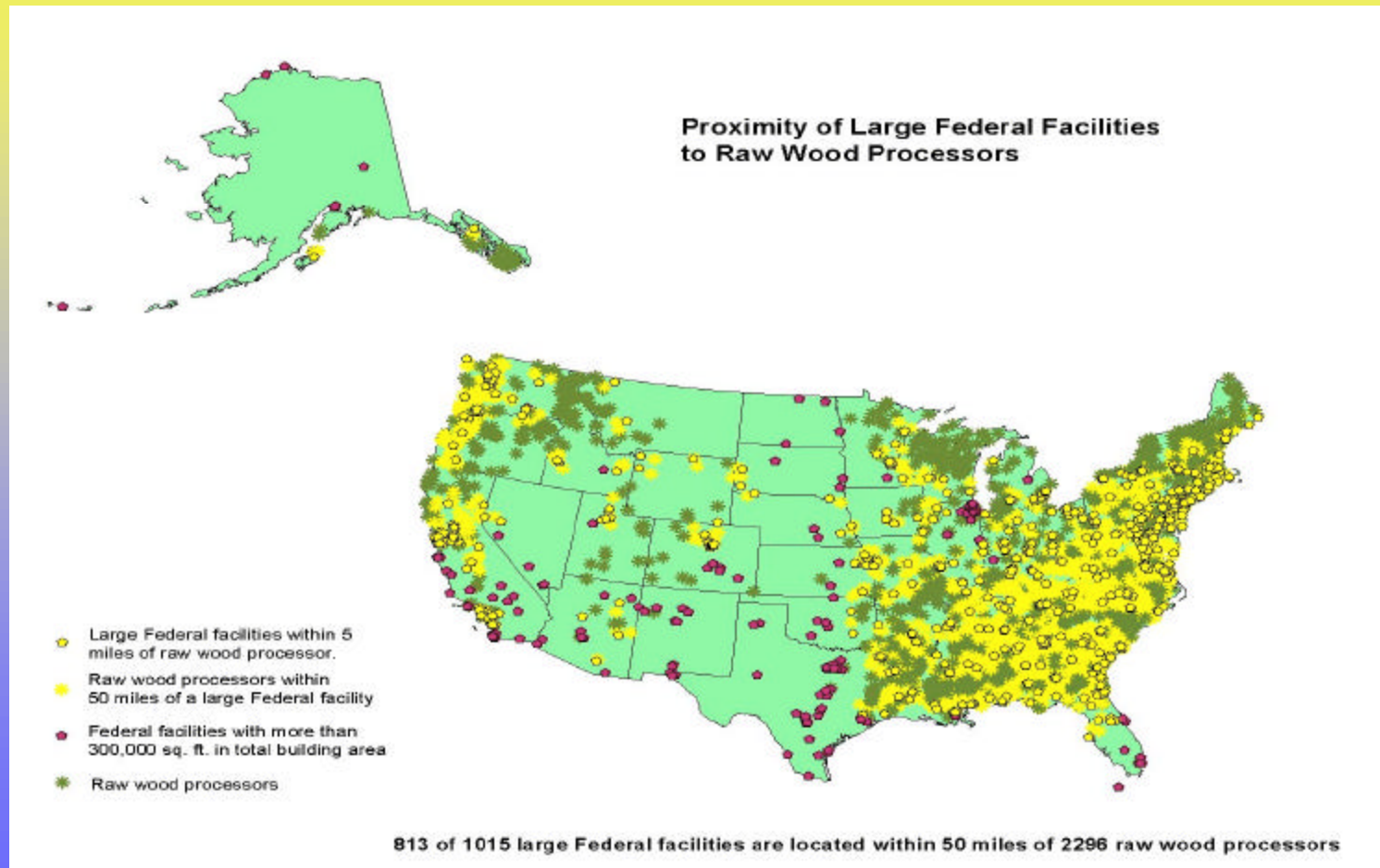


BAMF Resource Assessments

Software programs that match information on federal facilities with specific BAMF resources:

- Landfills (within 10 miles)
- Wastewater treatment plants (within 10 miles)
- Wood waste from 10 or more sources (within 50 miles)

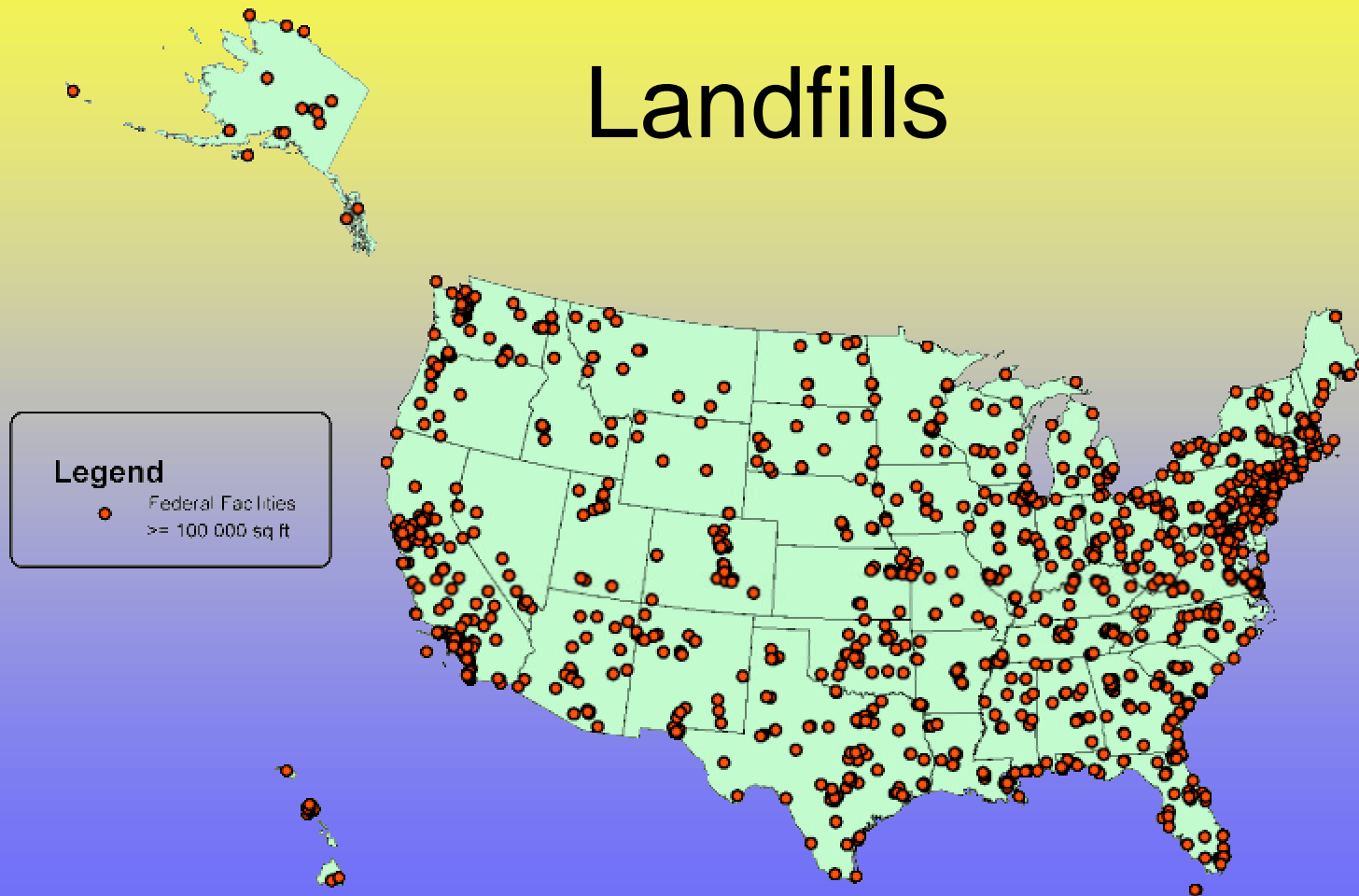
Resource Assessment - Wastewood





Resource Assessment

Landfills

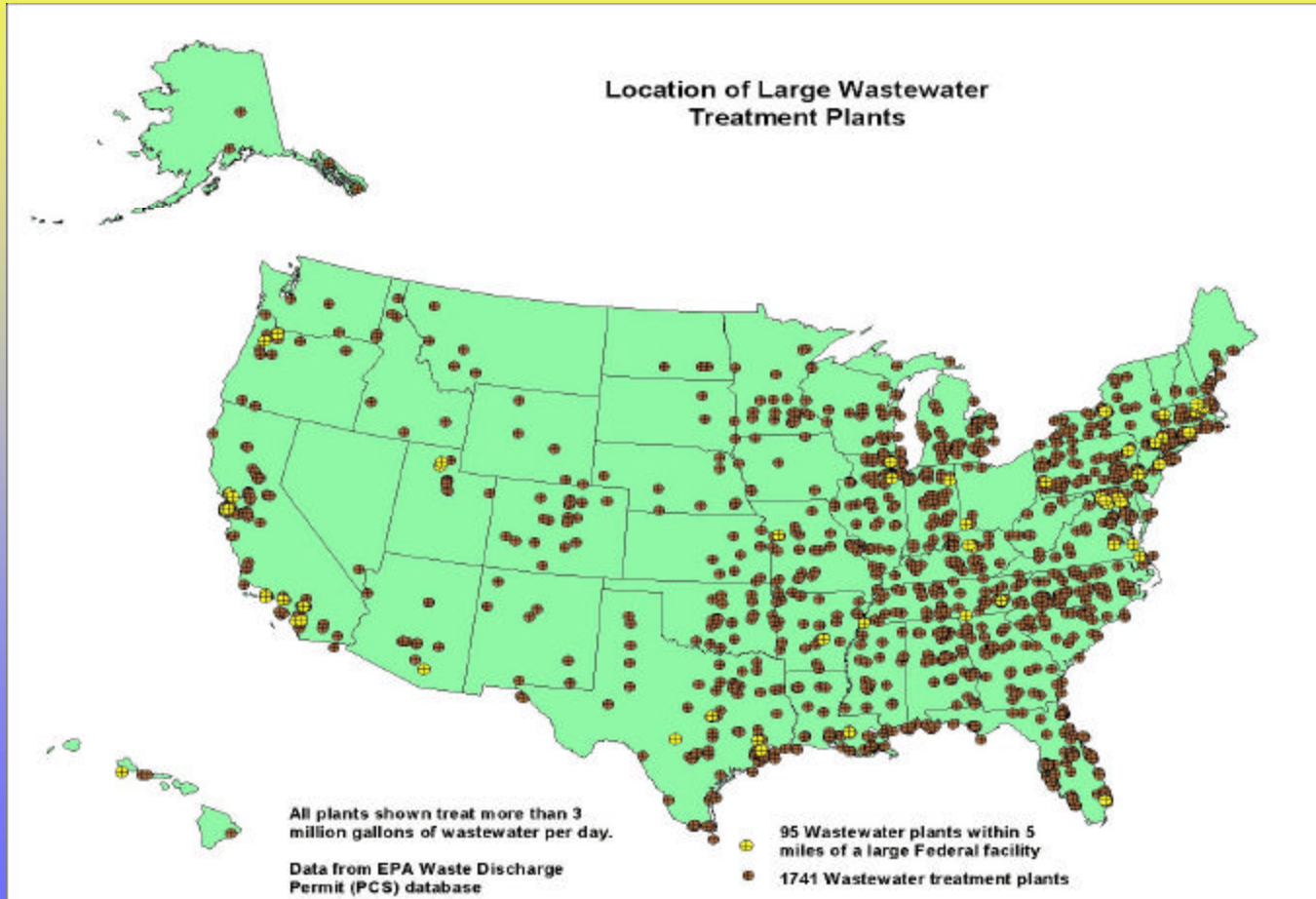


August 17-20, 2003

0 1,000 2,000 Miles
www.energy2003.ee.doe.gov



Resource Assessment Waste Water Treatment Plants



Conclusion

- Many types of resources & technologies
- Projects will meet multiple agency goals
- FEMP & BAMF Teams ready to assist

